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EXAMINER	
WERNER, DAVID N	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/801,983	CHIANG WEI YIN ET AL.
	Examiner	Art Unit
	David N. Werner	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on ____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5)☐ Claim(s) ____ is/are allowed.

6)☒ Claim(s) *1-24,26 and 32-37* is/are rejected.

7)☒ Claim(s) *21,25 and 27-31* is/are objected to.

8)☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 September 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. ____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date ____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: ____.

DETAILED ACTION

1. This is the First Action on the Merits for US Patent Application 10/801,983. Currently, claims 1-37 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. Applicant is reminded of the Duty to Disclose under 37 CFR 1.56 of any cited prior art or other information material to patentability in a related foreign application. The Search Report for corresponding European Patent Application Publication 1,465,430 A3 and all available documents cited therein have been placed in the record.

Drawings

4. Replacement drawings were received on 02 September 2004. These drawings are of acceptable quality for examination.

5. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

6. Claim 21 is objected to because of the following informalities: on the second line of the claim, the phrase "the same" should be inserted between the words "have" and "DCT". Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 4-6 and 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the steps of storing macroblocks in a memory. The reference to "macroblock address decoding" in claim 4 implies that at one point during the decoding process, macroblocks are stored in a memory. However, parent claim 1 only refers to "receiving a video frame". Although the specification states

that the Macroblock Pointer Table is for the Compressed Frame Buffer where a partially-decoded frame is stored after the first "pass" of the "two-pass decoding process", this is not reflected in the claims. Therefore, since the claims relating to the Macroblock Pointer Table do not mention placing macroblocks in a buffer or memory containing the addresses stored in the table, these claims are indefinite.

10. Claim 20 recites the limitation "said picture characteristics" in line 1. There is insufficient antecedent basis for this limitation in the claim. Parent claim 7 refers to "parameters" and "statistics", but not "characteristics".

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7-10, 20, 21, 23, 24, 26, and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Application Publication 2002/0181595 A1 (Obata et al.). Obata et al. teaches a video signal processing system that performs a decoding and re-encoding process. Regarding claim 1, figures 10A and 10B illustrate one embodiment of the invention of Obata et al. In figure 10A, a decoded video signal is recorded before being re-encoded, and in figure 10B, a decoded video signal is transmitted before being re-encoded. First, the video stream is decoded in decoder 101 (paragraph 0129). Figure 11 illustrates the working of decoder 101. VLC decoder 1112

partially decodes the incoming stream input through buffer 1111 and extracts picture information (paragraph 0143). The video stream is then fully decoded (paragraph 0145). Next, encoder 105 performs a re-encoding process using the information Ip extracted from the decoded video (paragraph 0144). Regarding claim 2, VLC decoder 1111 performs variable length decoding (paragraph 0143). Regarding claim 3, in decoder 101, if a current frame is an inter frame, motion compensation is performed between the current frame and a reference frame, in accordance with the MPEG standard (paragraph 0145). Since the reference frame is a frame that was previously input into the decoder, it inherently has passed through variable length decoder 1112 before being available for use in frame memory 1117. In addition, note that parameters from reference frames can be utilized in further inter-coded pictures during re-encoding (paragraph 0034).

Regarding claim 7, the encoding parameters may include picture type, motion vectors, picture size in bits, and the average quantizing scale (paragraph 0065). This information corresponds with the "video data parameters" and the "picture statistics". The average quantizing scale and target macroblock encoding size are determined based on an encoding difficulty factor X_mb[mb_i] (paragraphs 0088-0093). This difficulty factor corresponds with the "macroblock complexity". Regarding claim 8, an MPEG decoder can supply to an associated re-encoder data such as picture type, moving vectors, number of bits in a picture, and a quantizing scale (paragraph 0074). Regarding claim 9, the average quantizing scale is the average value of the quantizing scale for every macroblock in a frame as a whole (paragraph 0072), and so is picture-

level data. Regarding claim 10, in one embodiment of Obata et al., a moving vector extracting circuit in a decoder extracts a moving vector from a video stream and supplies it to the associated encoder (paragraph 0081). Regarding claim 20, the encoder calculates a quantizing scale based on a picture complexity $\sum_{i}^{NMB} X\_mb[mb\_i]$ (paragraph 0089), and regarding claim 23, macroblock difficulty X_mb[mb_i] is determined from predictive value fbit[mb_i] (paragraphs 0090-0091), and so the sum of macroblock difficulties is a "sum of estimated macroblock complexities". Regarding claim 24, predictive value fbit[mb_i] is the predictive size in bits of macroblock i, including its DCT coefficients. So the sum of fbit[mb_i] for every macroblock is a "sum of estimated macroblock bit counts"

Further regarding claim 20, Obata et al. determines an RFF and TFF flag for each picture as a parameter, in accordance with the MPEG standard (paragraphs 0133-0134). These flags, determining field or frame picture type, correspond with the claimed "DCT type", as defined in page 19, lines 25-26 of the specification. Regarding claim 21, in an application of the invention of Obata et al. for use in transmission, the TFF flag is set to 1 and the RFF flag is set to 0, for an interlaced field transmission with the top field in a picture transmitted before the bottom field, in accordance with the NTSC standard (paragraphs 0160-0161). This does not change regardless of the motion vectors of individual macroblocks, such as if a particular macroblock has a forward, backward, or bidirectional encoding. In a different application of Obata et al., such as in a pull-down device, the TFF and RFF flags may change for each picture (paragraphs 0156-0159).

Regarding claim 26, figure 12 of Obata et al. illustrates the working of encoder 105. This encoder includes a controlling portion that controls every component of the decoder shown in figure 12 according to information Ip (paragraph 0138). This includes a quantizing characteristic that controls quantizer 1256 (paragraph 0141). The encoder outputs an encoded video signal through buffer 1258 (paragraph 0142). Regarding claim 32, figure 5 shows a nested loop for the control of Obata et al., with quantizing scale calculation step S106 in the inner loop and picture bit size assignment calculation step S102 in the outer loop (paragraphs 0087-0088).

Regarding claim 33, DCT portion 1255 performs a DCT encoding step (paragraph 0140), quantizing portion 1256 performs a quantizing step according to a quantizing characteristic from the control portion (paragraph 0141), and variable length encoding portion 1257 performs a VLC encoding step (paragraph 0142). Since the encoding controlling portion controls every component of the MPEG encoder (paragraph 0138), all encoding parameters are encompassed.

Regarding claim 34, MPEG decoder 101 corresponds with the "means for partially decoding the video frame" and "means for fully decoding the video frame", and MPEG encoder 105 corresponds with the "means for determining video data parameters" and the "means for encoding the macroblocks", in accordance with 35 U.S.C. 112, sixth paragraph. Regarding claim 35, in the decoder of Obata et al., buffer 1111 receives a video frame, variable length decoder 1112 partially decodes the video frame, and the remaining components of the decoder fully decode the video frame. The controlling portion of encoder 105 receives video parameters Ip from the decoded

frame, and the remaining components of the encoder encode the macroblocks based on this data.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al. in view of US Patent 5,910,824 A (Yu). Although Obata et al. discloses storing reference frames in a frame memory in a decoder for use in motion compensation during a decoding process, it does not disclose decoding macroblock addresses in a macroblock pointer table. Yu discloses a frame memory in a motion picture decoder. Regarding claim 4, in the memory of Yu, a single reference frame is stored for use as a predictive frame reference in motion compensation (column 1: lines 17-52). A macroblock is stored in 16 lines of memory, each line containing a word that corresponds to 16 horizontal pixels (column 3: lines 7-14). These 16 lines are stored as 16 columns in a row in the memory (column 3: lines 40-43). Then, to read a macroblock from the memory, one needs to know its row address R and column address C (column 4: lines 55-61). Regarding claims 5 and 6, to read a reference macroblock in the frame stored in frame memory at a relative position to a current macroblock in a current frame, the memory is addressed in terms of a slice address and

a macroblock address within the slice (column 6: lines 14-48). A translation is made between this "virtual" slice address and macroblock address and the "actual" row address and column address.

Obata et al. discloses the claimed invention except for detailing the addressing of macroblocks in a memory for decoding reference frames. Yu teaches that it was known in the art to perform a conversion between the location of a macroblock in a frame and its memory address. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to associate the location of a macroblock in an image with the location of the macroblock in a memory, as taught by Yu, since Yu states in column 7, lines 21-27 that such a modification would increase the access speed of the memory and consequently a motion compensation process that requires reading from the memory.

14. Claims 11, 13, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al. in view of US Patent 5,907,374 A (Liu). Although Obata et al. teaches determining macroblock parameters, a flag for whether a picture is in field mode or frame mode (paragraph 0133), corresponding with the claimed DCT type, as defined in page 19, lines 25-26 of the specification, and a bit-count for a whole picture, it is silent on bit-counts for specific DCT coefficient levels, a quantizer scale for an individual macroblock or a minimum quantizer scale.

Liu teaches a video processing apparatus that may operate on a fully or partially decoded signal. The apparatus of Liu includes a layered decoder in which each

individual step of decoding is optional, and so may output a partially-decoded signal with associated bitstream parameters, and a layered encoder in which each individual step of encoding is optional, and so may take as input a partially-decoded signal, and re-encode the signal using associated bitstream parameters (abstract). Regarding claim 11, the layered decoder may output as a bitstream parameter the locations of DCT coefficients in each block in a partially decoded or fully decoded bitstream (column 11: lines 45-46), so it is known how large each DCT coefficient is. The layered encoder then uses this information in re-encoding the partially or fully decoded bitstream (column 11: lines 39-50). Also, in Liu, the layered decoder sends a quantizing step size MQUANT[k] as a macroblock parameter to the layered encoder (column 18: lines 19-25). Since in Liu, in accordance with the MPEG standard, macroblocks for inter-coded frames are difference macroblocks (column 13: line 55–column 14: line 25), using macroblock parameters for reference frames in decoding or re-encoding inter-blocks is inherent.

Obata et al. teaches the claimed invention except for transmitting certain macroblock parameters. Liu teaches that it was known to set an encoded macroblock bit size and quantizer scale as a macroblock parameter between an associated decoder and re-encoder. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to transmit various macroblock parameters, as taught by Liu, since Liu states in column 17, lines 63-66 that such a modification would reduce the computational complexity required by a re-encoder.

Regarding claim 13, in Obata et al., the RFF or TFF flag is constant for a whole picture, and so applies for every macroblock, regardless of whether a picture is an I-picture, a P-picture, or a B-picture (paragraphs 0133-0134). Regarding claim 22, in Liu, prior to re-encoding, the layered encoder receives the bitstream parameter Rin, representing the bit rate of the compressed input bitstream and bitstream parameter Rout, representing a user-defined desired output bit rate for the re-encoded bitstream, and calculates ratio $bits_{ratio0}$ by dividing Rout by Rin (column 19: lines 1-12). This ratio corresponds with the "compression factor".

15. Claims 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al. in view of Liu as applied to claim 11 above, and further in view of "A Scene-Adaptive One-Pass Variable Bit Rate Video Coding Method for Storage Media" (Yokoyama et al.) The quantizer of Liu sets a conversion factor for the quantizer scale before quantizing macroblocks in order to control an output bit rate, but this conversion factor is relative to the compression ratio of the re-encoded video stream (column 19: lines 46-64) and does not set an absolute limit to the compression scale.

Yokoyama et al. teaches a video coding method. In Yokoyama et al., the quantizer scale is set as a maximum (§ 2.8) of Q_{gop}, an adaptive quantization scale based on predicted scene complexity (§ 2.4), $Q_{maxrate}$, which guarantees a maximum output bit rate (§ 2.6), and Q_{min}, which is a fixed minimum scale value (§ 2.7). Regarding claim 14, Q_{min} is a constant value, and so is the same for both intra-coded and inter-coded macroblocks.

Obata et al., in combination with Liu, discloses the claimed invention except for setting a minimum quantizer scale value. Yokoyama et al. teaches that it was known to set a minimum quantization scale level. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to introduce a minimum quantization value, as taught by Yokoyama et al., since Yokoyama et al. states in section 2.7 that such a modification would prevent the encoding of unnecessary information below a human perception threshold.

Regarding claims 15-17, Liu teaches step (iv), Obata et al. teaches step (v), and Yokoyama et al. teaches step (vi). In Liu, the layered decoder may partially or completely decode a picture as needed, producing a decompressed video bitstream and a series of parameters for use in the layered encoder (column 6: lines 16-42, 57-65). Therefore, the derivation of any particular parameter from a partially-decoded or fully-decoded picture is fully encompassed by Liu. Regarding claims 18-19, in Yokoyama et al., a complexity value for a segment of video information is calculated as the product of a predicted quantization scale and bit rate for the segment of video (§ 2.4).

16. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al. in view of US Patent 6,400,763 B1 (Wee). Obata et al. discloses extracting motion vectors from an image (paragraphs 0078-0081), but not performing motion vector determination based on a maximum overlap.

Wee discloses a motion vector determination system designed for a trick-play playback mode such as reverse. Regarding claim 12, Wee divides a current frame into tiles, or blocks, and for each tile, determines if it overlaps any closest-match blocks (column 9: line 57–column 10: line 10). Next, Wee determines which of these closest match blocks has the most overlap to the current tile (column 10: lines 10-14). Closest-match blocks that do not overlap the current tile are ignored (column 10: lines 19-30). The block that has the highest level of overlap to the current tile is chosen for the final motion vector calculation (column 10: lines 30-52).

Obata et al. discloses the claimed invention except for determining motion compensation based on a maximal overlap calculation. Wee teaches that it was known to select the best-match macroblock that has the maximum overlap to a current macroblock during motion compensation. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a motion vector based on a maximum overlap calculation, as taught by Wee, since Wee states in column 3, lines 16-18 that such a modification would require less computational complexity than a conventional full motion search.

17. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al. in view of US Patent 5,370,143 A (Oh). Claim 36 is similar to claim 35, with the additional limitations of a decimation filter module that spatially decimates decoded macroblocks and an interpolation filter module that performs a spatial

interpolation to restore an original resolution. Obata et al. does not disclose these features.

Oh teaches a video processing circuit that converts a digital HDTV transmission to an analog signal. Regarding claim 36, figures 1 and 4 show circuits in use in the apparatus of Oh. In the circuit of figure 1, horizontal low pass filter 101 horizontally filters a high-definition signal, and sampler 102 downsamples the filtered output to produce a signal with a reduced number of horizontal samples (column 2: lines 13-18). Additional processing is then performed, such as vertical and temporal decimation, followed by QMF separation in the circuit of figure 2 (column 2: line 19–column 3: line 2). The circuit of figure 3 reverses the processing performed by the circuit of figure 2 (column 3: lines 3-31), and the circuit of figure 4 reverses the processing performed by the circuit of figure 1 (column 4: lines 32-46). At the end of the expanding circuit of figure 4, interpolator 205 performs a horizontal upsampling function, and low pass filter 206 low-pass filters this output (column 3: lines 42-46) to complete the expansion. Thus, the high-definition signal is restored.

Obata et al. discloses the claimed invention except for decimating and interpolating a video signal. Oh teaches that it was known to compress a video signal by decimation and de-compress the signal through interpolation. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the decimation circuit of Oh to the decoder of Obata et al. and the interpolation circuit of Oh to the encoder of Obata et al., since Oh states in column 1, lines 31-33 that such a modification would improve bandwidth efficiency in transmission.

Regarding claim 37, as previously mentioned, Obata et al. calculates an average quantizing scale for a picture (paragraphs 0064-0070), corresponding with the "averaging operations" as defined in page 28, lines 16-17 of the specification.

Allowable Subject Matter

18. Claims 25 and 27-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter:

Claim 25 is allowable because it is directed to deriving a picture bit count of DC coefficients as the sum of real bit counts of DC coefficients from intra-coded macroblocks and of predictive bit counts of DC coefficients from inter-coded macroblocks. In Obata et al., only a predictive bit count fbit[mb_i] is calculated as a macroblock parameter, regardless of whether a current macroblock is an intra-coded macroblock or an inter-coded macroblock, and so, a picture bit count is only a sum of predictive bit counts.

Claims 27-31 are allowable because they are directed to a specific method for determining a target macroblock size. Obata et al., the closest prior art, shows a target bit rate calculation in equation 5 (paragraph 0092), in which target_bit_mb[mb_i] corresponds with the claimed target bit number, the XA factor corresponds with the

claimed $\frac{\tilde{X}_i}{\tilde{X}_{pic}}$ factor, and the x_mb[mb_i] term corresponds with the claimed S^T_{pic} term, but there is no term corresponding to the claimed ξ_{pic} term, the proportional integral adjustment for the picture level found in claims 27, 30, and dependent claims therefrom. Liu et al. controls bit rate using a normalization conversion factor f[k] (column 19: lines 46-64), calculated in a different method from that proposed in the present invention.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 5,489,944 A teaches a video encoder that determines a quantization level for a block according to a characteristic of the macroblock. US Patent 5,557,332 A (Koyanagi et al.) teaches a decoder that performs a search on a search area spread over several buffers. US Patent 5,589,993 A (Naimpally) teaches a signal processing system that decimates a high-definition signal for recording. US Patent 5,754,698 A (Suzuki et al.) teaches a transcoder that includes a paired local decoder and encoder. US Patent 5,802,226 A (Dischert et al.) teaches a mixer that performs editing techniques on a partially decoded video signal. US Patent 5,831,688 A (Yamada et al.), US Patent 6,222,887 B1 (Nishikawa et al.), US Patent 6,243,495 B1 (Naveen et al.), and US Patent 6,301,428 B1 (Linzer) each disclose an image decoder and re-encoder. US Patent 6,310,915 B1 (Wells et al.) teaches a transcoder that gathers image parameters from previously encoded pictures. US Patent 6,333,949 B1 (Nakagawa et al.) teaches a video encoder and decoder that performs a downsampling

and upsampling process. US Patent 6,377,628 B1 (Schultz et al.) was cited in the corresponding European Search Report. US Patent 6,542,546 B1 (Vetro et al.) teaches a paired decoder and re-encoder. US Patent 6,934,330 B2 (Sugiyama et al.) teaches an adaptive quantizer. Australian Patent Application Publication 1998-97618 A (Yanagihara et al.) teaches a transcoder that performs requantizing. International Publication WO 1999/51036 A2 (Bailleul) was cited in the European Search Report. International Publication WO 2002/35852 A1 (Bourge et al.) teaches a paired decoder and re-encoder. "The Art of Computer Programming" (Knuth) and "MPEG Video Compression Standard" (Mitchell et al.) were cited in the European Search Report.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Werner whose telephone number is (571) 272-9662. The examiner can normally be reached on Monday-Friday from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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DNW

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TC 2600